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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/753,208

01/07/2004

Thomas E. Drake JR.

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09/12/2007

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DALLAS, TX 75201-2980

EXAMINER

SAINT SURIN, JACQUES M

ART UNIT

PAPER NUMBER

2856

NOTIFICATION DATE

DELIVERY MODE

09/12/2007

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/753,208

Applicant(s)

DRAKE, THOMAS E.

Examiner

Jacques M. Saint-Surin

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is responsive to the amendment of 06/18/07.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

3. Applicant's arguments with respect to claims 9-12 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boyd et al. (US Patent 5,014,293) in view of Halsey (US Patent 3,910,124) and further in view of Parzuchowski et al. (US Patent 5,698,787).

Regarding claims 9-10, Boyd discloses an apparatus (scanner assembly shown in Fig. 1) for intact testing of an object, comprising, in combination:

means for scanning (CT scanner) the intact object (wing 40) mounted on a robot (Fig. 11 shows gantry 12 mounted on a support head attached to a hydraulically operated lever system which positions the gantry, see: col. 4, lines 23-27);

a structure (21) configured to contain said apparatus (computer system of Fig. 1) and said object (40) under inspection;

said robotic scanning means (12) supported by said structure (21) and including means to move (14, 16, 17 and 18) a scanning head (13) of said robotic scanning (12) means in three linear directions and at least two rotational directions (Boyd teaches five degrees of freedom, see: col. 3, lines 61-66 and col. 4, lines 1-10);

said apparatus is coupled to said structure (21), resulting in the formation of a gantry (12) for supporting a carriage (19), a mast (16) mounted on said carriage (19) and at least one of an emitter (32) and detector (33) mounted on said mast (16) which forms in part at least one inspection robot (see: Fig. 2) capable of precise positioning over large ranges of motion;

said at least one inspection robot (X-ray tube 32) further comprises a beam structure (37) for supporting and allowing horizontal translation (the support member 37 can be moved longitudinally along the space support beams 38, see: col. 3, lines 37-39) of said carriage (19);

said carriage (19) is coupled to said mast (16), wherein said mast (16) supports and allows a vertical translation (col. 3, lines 1-6 and 45-47) said at least one of the emitter (32) and detector (33) mounted on said mast (16), and wherein said mast (16) is configured to provide yaw movement of said at least one of the emitter (32) and detector (33) (transverse tomographs are obtained by scanning projection images at multiple angles, Fig. 8, col. 4, lines 3-5 and 28-33);

and said at least one of the emitter (32) and detector (33) is configured to provide rotation about at least one axis of roll and yaw motion of said at least one emitter (32) and detector (33). However, Boyd does not disclose or suggest means to correlate data derived from scanning the object to a standard and comparison means to correlate data from the scanning means to a standard. Halsey discloses as pointed out previously, an electronic "standard" can be fed into the computer or other analytic circuitry 70 for comparison with the array of signals transmitted thereto from the segmented receiver

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58; the electronic standard can be correlated with a predetermined cycle of the previously described object movements for a given specimen (see: col. 9, lines 4-10). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in Boyd the techniques of Hasley because scanning can then be repeated at various zoom positions for further condition analysis in order to provide a reliable and accurate inspection. In addition, Boyd in view of Hasley does not disclose means for determining that scanning is performed through the entire gantry free of obstruction. Parzuchowski discloses as shown and preferred in FIG. 6; the apparatus of the present invention includes at least one movable, ultrasonic, receiving, transducer such as a piezoelectric ultrasonic receiving transducer 650, mounted on the surface skin of the test object opposite the delivery location of the incident laser energy (through the movable assembly 610A), so as to receive the through transmission of ultrasonic energy output from the laser based ultrasonic transducer 600 in the test object 680. The receiving transducer 650 itself preferably produces an output representing the ultrasonic transmission generated in the test piece by the incident laser beam (col.6, lines 24-34). Parzuchowski further discloses Fig. 11 is a example of a photograph of a typical C-scan image based on an inspection of a test piece using a prototype of the invention employing a Nd:YAG laser, by way of example, coupled to a MAUS III scanner (col. 9, lines 3-13). It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize in the combination of Boyd in view of Hasley the techniques of Parzuchowski because it would provide a useful means by which to conduct a nondestructive inspection of the

radius region of a joint created in many of today's co-cured composite structures useful in the aerospace industry, particularly in those structures in field use, for which access may be small, or in which the use of a liquid couplant in the interior of the structure is undesirable wherein one of the advantages of utilizing laser energy is that laser energy permits a smaller area on the test piece to be insonified, thereby providing the potential to detect relatively small defects in the radius area of a co-cured composite area in a reliable manner.

Regarding claim 10, Parzuchowski discloses laser based ultrasonic transmitting, transducer means coupled to means to deliver at least one, movable, incident laser beam to a test object so as to generate ultrasonic energy output for through transmission of the ultrasonic energy output in the test article, such transmission representing a characteristic of the internal composition of the test object; at least one movable, ultrasonic, receiving, transducer means mounted on the test object opposite the movable incident laser beam, so as to receive the through transmission of ultrasonic energy output from the laser beam in the test article, the receiving transducer means further producing an output representing the transmission of ultrasonic energy generated by the laser beam in the test object

Regarding claims 11-12, Boyd discloses to scan an object, the gantry may be rotated or the x-ray source and detector array may be moved along the gantry, or both. (see: col. 3, lines 32-34). Boyd further discloses emitter 32 and detector 33.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays to Fridays between 10:30 A.M and 800 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

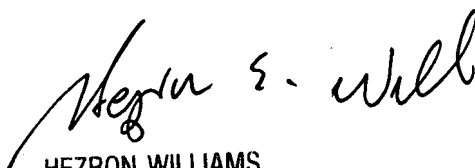
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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jacques M. Saint-Surin
September 09/03/07



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